Attachment A



For AT&T, 5G Is a City Kitty, Not a Residential Fat Pipe



News Analysis Dan Jones. Mobile Editor 8/8/2018

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AT&T's mobile 5G -- which it expects to switch on late in 2018 -- will be directly aimed at dense, city blocks, rather than residential broadband offerings in the 'burbs, CFO John Stephens said Tuesday.

"We're going to be putting a lot of small cells in downtown urban areas," with mobile in 2019, Stephens told the financial analyst audience at the Oppenheimer 21st Annual Technology, Internet & Communications Conference, adding that he's "not sure that the costs justify residential" broadband.

The CFO's reasoning is that the operator has already deployed fiber that passes -- or is very close -- to 22 million residential and business customers now. So 5G updates could follow eventually, but "not right now." Stephens said.

This helps explain the distinction in 5G strategies between AT&T Inc. (NYSE: T) and Verizon Wireless. AT&T says it will launch mobile 5G in "parts" of 12 markets in the US in late 2018, while Verizon will switch on residential broadband in the second half of this year, with mobile in 2019. (See 5G in the USA: Where We at With Mobile?)

AT&T has said previously that it plans to deploy 5G in millimeter wave spectrum (around 30GHz to 300GHz), which explains the deployment plans, since AT&T's fixed mmWave tests have so far shown gigabit download speeds at up to 275 meters. (See Millimeter Wave 5G: The Usain Bolt of Wireless?)

Stephens, however, said that AT&T is also deploying "5G-ready" gear for Wireless Communications Service (WCS) and AWS-3 spectrum, along with its FirstNet public safety radios. The Advanced Wireless (AWS-3) band runs between two blocks of spectrum at 1695MHz to 2180MHz, while WCS 2.3GHz would be referred to as mid-band in the 5G world.

Stephens expects 5G on this spectrum to start late in 2018 through 2019, with a software upgrade. "It's going to be more difficult than just flipping a switch," the CFO warned.

— Dan Jones, Mobile Editor, Light Reading

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Attachment B

Verizon will launch 5G home internet service starting October 1st

Starting Houston, Indianapolis, Los Angeles, and Sacramento

By Nick Statt on September 11, 2018 5:00 pm



Image: Verizon

Verizon's 5G broadband internet service will go live later this fall, with installations starting on October 1st in Houston, Indianapolis, Los Angeles, and Sacramento, the company announced today. This marks the first 5G commercial service to launch in the US, and it sees Verizon make good on its promise to do so in November 2017. Verizon is calling it simply 5G Home, quoting "typical speeds" of 300 Mbps and peak speeds of nearly 1 Gbps, depending upon location.

This isn't <u>true mobile 5G</u>, which will be the more impactful rollout of the new internet speed standard that was finalized last December when all networks and phone manufacturers support it. But theoretically, it should bring faster broadband speeds for home internet that are on par with, or at least in the range of, gigabit fiber networks. It also helps Verizon in its rollout of mobile 5G in the future, which will involve a <u>dizzying number of different technologies</u>, hardware, and partnerships to get off the ground.

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As for pricing and availability goes, Verizon says customers in those select metro areas can sign up for it starting on September 13th, so long as their address in a supported ZIP code. It will cost \$50 a month for existing Verizon Wireless customers, and \$70 for non-Verizon customers. If you're one of the first members to sign up for the service, Verizon will sweeten the deal with free router installation, three months of complimentary service, a free Chromecast or Apple TV 4K, and three months of free YouTube TV. According to Verizon, the service will be up and running once installation is complete.

Update 9/11, 5:08PM ET: Clarified Verizon's pricing and the service's added benefits, as well as the fact that the 5G service will be live as soon as installations are complete on October 1st.